CENTROSOME PROTEINS AND USES THEREOF

CROSS-REFERENCE TO RELATED APPLICATION

This application claims benefit of priority from United States Provisional Patent Application Serial No. 60/410,520, filed on September 13, 2002, and to the United States Patent Application Serial No. 10/663,443 (not yet assigned) filed on September 15, 2003, claiming priority therefrom, both of which patent applications are incorporated herein by reference in their entireties.

FIELD OF THE INVENTION

This invention relates to the centriolin and pericentrin-B/kendrin genes, the polypeptides they encode, and their uses in the detection, diagnosis, and treatment of centrosomal and cell division diseases and disorders.

BACKGROUND OF THE INVENTION

Centrosomes are the major microtubule nucleating organelles in most animal cells. They nucleate and organize microtubules for spindle assembly during mitosis and establish microtubule arrays in interphase cells for numerous cellular functions. Centrosomes are comprised of two major structural elements, centrioles and the pericentriolar material/centrosome matrix. Centrioles are microtubule barrels present as pairs in each centrosome, and appear to organize the pericentriolar material (Bobinnec *et al.*, *J. Cell Biol.*, 143:1575-1589, 1998) and anchor microtubules (Chretien *et al.*, *J Cell Biol.*, 120:117-133, 1997; Piel *et al.*, *J Cell Biol.*, 149:317-330, 2000). The pericentriolar material nucleates the growth of new microtubules and serves as a scaffold for molecules that regulate fundamental cellular processes.

SUMMARY OF THE INVENTION

The invention is based on the discovery that centriolin, together with pericentrin-B, plays a key roles in centrosome function. The invention provides new methods for diagnosing and treating centrosomal diseases.

The invention includes isolated nucleic acids that include SEQ ID NOs:1 and 3 (and complementary sequences, fragments, and analogs thereof), polypeptides encoded by SEQ ID